

**Emergency Planning and Community Right-To-Know Act  
Toxic Release Inventory (TRI) EPCRA 313 and General Duty Clause (GDC) of the Clean  
Air Act (CAA) Section 112(r)**

**Inspection Report**

**Facility Name:** RIDCO Casting Co.

**Facility Address:** 6 Beverage Hill Ave. Pawtucket, RI 02860

**Date of Inspection:** August 26, 2015

**Inspector:** Chris Rascher

Office of Environmental Stewardship  
RCRA, EPCRA and Federal Program Unit  
U.S. Environmental Protection Agency, Region 1

**Inspection Report:**

**Prepared by:** \_\_\_\_\_Chris Rascher\_\_\_\_\_ **Date:** 11 /3/15

## **TRI Inspection Report**

**Facility Name:** RIDCO Casting Co.

**Facility Address:** 6 Beverage Hill Ave. Pawtucket, RI 02860

**Facility Telephone Number:** (401) 724-0400

**Facility TRI ID Number:** 02860RDCS6BEVE

**Inspectors:** Chris Rascher,

**Inspection Date:** August 26, 2015

**Arrival time:** Approximately 8:00 AM

**Type of Inspection:** EPCRA 313

**Current Owner:** RIDCO Casting Co. (single facility)

**Current Operator:**

**Parent Company:**

**Notice of Inspection prepared by:** Chris Rascher

**Entry/ Opening Conference**

**Credentials Displayed?** Yes

**Purpose of Inspection Explained?** Yes

**Notice of Inspection presented and signed by facility contact?** Yes

**Attempt to deny entry?** No

**Facility Representatives Present:**

Jeffrey Cohen, President

Keith Antaya, VP Manufacturing

**Primary SIC Code:**

**Primary NAICS Code:** 331522 nonferrous (except aluminum) die-casting foundries

**Number of Full Time Employees:** 68 full time (one shift)

**Annual Sales:** \$10 million

**Facility square feet:**

The facility was targeted for a Toxic Release Inventory (TRI) inspection through review of their Tier 2 forms. Their Tier 2 submittal reported receiving 2,000,000 pounds per year zinc compounds and 20,000 pounds per year lead compounds over the TRI reporting threshold - but the facility hadn't reported in TRI since 2006. The inspection found the facility over reported on their Tier 2 forms and did exceed the lead compound reporting threshold for 2012 (5 pounds over the reporting threshold) but not 2013 and 2014. The inspection also found that the facility shipped off more than 400,000 pounds of zinc, identified as "zinc dross" each year but it was unclear what the quantity of zinc compounds is in that dross. While zinc dross from galvanizing operations can have zinc compound quantities near 70% (observed during previous galvanizing inspections), zinc compound quantity from RIDCO's casting operations were as low as 5%. The facility agreed to obtain information from their vendor (Eastern Alloys) so they may determine a more accurate quantity of zinc compounds generated at the facility.

### **Facility and Process Description**

Mr. Cohen stated that the facility manufactures cast zinc components such as the housings for box cutters. Stanley Tool Works are their major customer although they manufacture zinc parts for a number of other customers. Their products are found in most large and small hardware and home improvement stores. A specific zinc alloy (Z3) is used in more than 99% of their products and a general zinc alloy specification sheet provided by RIDCO included metals in the die casting alloy. The general specification sheet reported metal components in addition to zinc aluminum (3.5 to 4.3%), copper (0.1 to 0.2%) and lead (0.004 to 0.005%). Mr. Antaya stated that RIDCO processes approximately 5,000,000 pounds of zinc per year and casts approximately 40 million parts per year. The pictures included in this inspection report show the processes occurring at the facility. There are approximately 8 zinc melting pots which contain the molten zinc. This zinc is pumped in to zinc molds and parts are cast. I observed this to be a highly automated process and cast parts are produced quickly and most are trimmed in a separate automated step. Both scrap from the trimmings and dross skimmed from the melting parts are shipped off and recycled.

### **Previous TRI Reports**

The facility last submitted TRI reports 2006 for the 2005 calendar year. They reported for ethylene glycol, lead compounds, zinc compounds, and zinc fume or dust. TRI records show that the facility reported from 1991 through 2005. Discussions during the introductory meeting at the beginning of the inspection suggested that the facility may have transposed Tier 2 requirements for TRI reporting requirements.

### **TRI Data and Calculations**

Data and tables provided by RIDCO during the inspection include the summarized information below and were used to determine thresholds presented in the table below. RIDCO assumed a conservative concentration of 0.004 % lead for the lead compound concentration used in the calculations, however certification analysis also provided during the inspection determined lead concentrations at 0.0022 % approximately half of that provided below. If the 0.004% concentration would be used, RIDCO would be over the reporting threshold all three years. This discrepancy (and exceedance) was pointed out to Mr. Cohen and he said he would provide a more accurate calculation based on the certification analysis. Note that the data in the table

below which was provided during the inspection combines both zinc dross and zinc trimmings in the column labeled “zinc dross”.

	Zinc purchases	Zinc dross [and trimmings]	Zinc fumes	Lead compounds (0.004)
2012	5,290,134	390,440	249	212
2013	4,747,445	344,682	265	194
2014	4,935,057	426,717	243	200

The additional information provided by Eastern Alloy at the request of RIDCO after the inspection include lead concentrations, zinc dross and zinc fumes. Using the revised (more accurate) lead concentration of 0.002 % the facility exceeded the lead reporting threshold for the 2012 reporting year. The threshold is 100 pounds and the facility processed 105.76 pounds.

		Pb %	Pounds Alloy	Pb
2011	Avg	0.0020	4,696,000	93.92
2012	Avg	0.0020	5,288,000	105.76
2013	Avg	0.0020	4,847,000	96.94
2014	Avg	0.0020	4,978,000	99.56

The table below was provided by RIDCO via Email August 28, 2015, two days after the inspection. It shows each of the zinc dross shipments (the material skimmed off the surface of the kettles) for the years 2012, 2013, and 2014. This is in comparison to the total zinc alloy used at the facility which is shown in the table above. Zinc compound calculations based on two zinc compound measurement estimates provided by Eastern Alloy that company that purchases and recovers their zinc.

	2014	2013	2012
<b>DROSS</b>	<b>DROSS</b>	<b>DROSS</b>	<b>DROSS</b>
	13,730	20,010	21,255
	12,115	17,895	19,940
	15,570	13,490	12,090
	14,190	19,275	16,090
	18,240	16,645	11,780
	12,915	16,670	10,510
	16,080	12,150	19,510

	12,270	12,650	14,645
	19,910	11,390	15,065
	12,635	16,415	13,430
	13,955	19,255	9,490
	21,880	14,890	14,875
	14,660	13,995	16,385
	14,790	19,005	11,010
	13,175		11,955
	14,535		15,650
	11,685		14,865
	5,135		14,740
<b>TOTAL LBS</b>	<b>257,470</b>	<b>223,735</b>	<b>263,285</b>
<b>ZINC COMPOUNDS</b>			
<b>5.20%</b>	<b>13,388.44</b>	<b>11,634.22</b>	<b>13,690.82</b>
<b>7.10%</b>	<b>18,280.37</b>	<b>15,885.19</b>	<b>18,693.24</b>
<b>AVG @ 6.15%</b>	<b>15,834.41</b>	<b>13,759.70</b>	<b>16,192.03</b>

A description of the estimate method by Eastern Alloy is provided below. It is copied directly from a letter from John Malmgreen of Eastern Alloy dated August 27, 2015 and written to John Cohen of RIDCO. It provides the estimate of zinc compounds of 5.2% to 7.1% used in the calculations above.

*"We do not use distillation or electrolytic methods in our reclaim process. The material is melted at a temperature that is elevated compared to normal casting temperatures and further worked to get a better separation of the nonmetallic and metallic vs. simple skimming. We typically recover 65 to 75% from dross, the balance is a chunky ash-like material. This is misleading, since it implies that 25 to 35% is nonmetallic or compounds. Testing of our skims indicate that they are about 78% metallic, or conversely, about 22% compounds. Also, you need to keep in mind that the original material is not pure zinc, but rather a Zinc/Aluminum alloy. The skims are about 6% Aluminum, so the compounds may only be 94% zinc compounds. That would mean that dross is about 5.2% to 7.1% zinc compounds."*

#### **Closeout**

The closeout discussed the following at the end of the August 26, 2015 inspection. RIDCO will:

- More carefully recalculate quantities of lead in the zinc alloy and will provide this information to EPA within one week. My back of the envelope calculations indicate that

in 2013 RIDCO processed 120 pounds of lead in 2013 – exceeding the lead reporting threshold of 100 pounds.

- Obtain more information on the zinc compounds in the recycled zinc dross. The dross appears like “shin y metal” which may suggest higher zinc metal concentrations and low zinc compounds concentrations. My back of the envelope calculations suggest that 400,000 pounds of zinc dross with 10% zinc compounds would lead to approximately 40,000 pounds of zinc compounds manufactured in a year – exceeding the zinc compounds reporting threshold of 25,000 pounds.
- RIDCO will provide this information with one week of the inspection.

**Conclusions** based on additional information provided by RIDCO on 8/28/15 and a clarification on 8/30/15.

- Zinc compounds are below the reporting thresholds.
- Lead is above the reporting threshold in 2012 and below the reporting thresholds in 2011, 2013 and 2014.



Bad picture



Melting pot with zinc ingots in foreground.





Zinc ingots with central pot in background



Molten zinc in melting pot





Cast zinc parts



Automatic trimmer



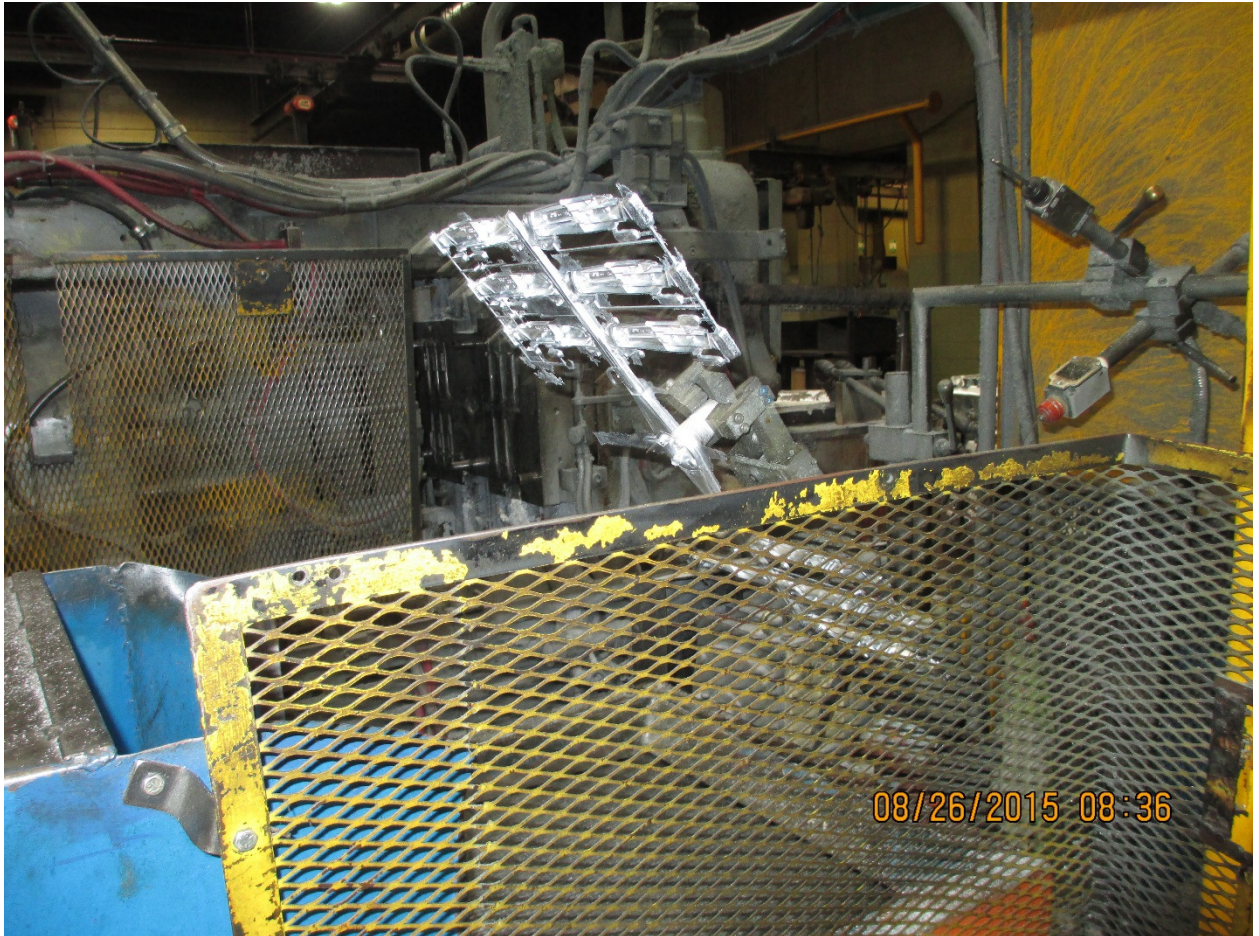


Out of focus picture showing many parts that are cast at facility



Central pot with pipe to melting pot





Automated removal of cast zinc part from die to conveyor belt



Zinc ingots to the left and “pigs” of zinc dross for shipment back to Eastern Alloy





Cast zinc part trimmings



Wastewater treatment system – water is recycled.

Email from Jeff Cohen dated Fri 8/28/2015 2:00 PM (Note that the second table in the above report is an attachment from this email).

**Chris,**

**As we discussed in our meeting, the following information is enclosed:**

**The lead content of the incoming zinc and the zinc compound calculations;**

- 1. Lead = As you can see from the enclosed sheet, the average lead content calculates at .002% and the full calculation for the 4 years is enclosed.**
- 2. Zinc compounds = Please see attached letter from Eastern Alloys describing the categories of material. Also please find a spreadsheet based on the actual dross sent to Eastern. In addition, I will be sending 3 separate e-mails with copies of the credits from Eastern Alloys (2012, 2013, 2014) showing the dross numbers that correlate to the spreadsheet. The file is too large to send all at once. If you use the 5.2% or the 7.1 %, the numbers are below the threshold figures. I also used an average of 6.15% showing you these numbers also.**

**This should be all of the information that you are requesting.**

**Please call me with any additional questions.**

**Jeff**

Regards,

Jeff

**Jeffrey A. Cohen** | President  
Ridco | 6 Beverage Hill Ave. Pawtucket, RI 02860  
Tel: 401.724.0400 Ext. 205 | Fax: 401.724.6320